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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,971	05/03/2007	Yasuhiro Suzuki	46884-5501	6542
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EXAMINER DANIELS, ANTHONY J				
ART UNIT		PAPER NUMBER		
2622				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/586,971

Applicant(s)

SUZUKI ET AL.

Examiner

ANTHONY J. DANIELS

Art Unit

2622

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 May 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CIS)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stark (US 2002/0186312) in view of Trevino (US # 6,856,349).

As to claim 1, Stark teaches a solid-state image pickup apparatus (Figure 6), comprising: a photo-detecting section having a plurality of pixels which are two-dimensionally arranged in M rows and N columns (M and N are integers of two or more) (Figure 6, unit cell array "102") and

each of which includes a photodiode (Figure 1, "PD") and a cell switch (Figure 1, "TR"), and N lines L_N provided in accordance with the respective columns of said pixels such that said associated photodiodes in said pixels that constitute the nth column (n is an arbitrary integer of one or more but N or less) are respectively connected to a line L_n via said cell switch corresponding to said associated photodiode (Figure 1, column line "12"; Figure 6, Col₁ - Col_N); an output section (Figure 6, video mux "110") which accumulates an electric charge that flows in through the line L_n into a readout circuit R_n (Figure 9, sense amplifiers "SA") and which outputs a voltage according to the amount of the accumulated electric charge from said readout circuit R_n via a switch SW_n (Figure 1, switch "S"; [0040] - [0042]), said output section being arranged at a first-row side or an Mth-row side of said photodetecting section and including N readout circuits R_1 to R_N and N switches SW_1 to SW_N (Figure 9); a row selecting section (Figure 6, left line decoder "104") which outputs a row selecting signal $SA_{A,m}$ for an instruction on switching of said cell switches in said pixels that constitute the mth row (m is an arbitrary integer of one or more but M or less) of said photo-detecting section (Figure 6, LnRd₁ - LnRd_M), said row selecting section being arranged at a first-row side or an Mth-row side of said photodetecting section (Figure 6); a column selecting section (Figure 6, column decoder "124") that outputs a column selecting signal $SB_{A,m}$ for an instruction on switching of said switch SW_n in said output section (Figure 9; [0144]), said column selecting section being arranged at a first-row side or an Mth-row side of said photodetecting section (Figure 6). The claim differs from Stark in that it further requires a waveform shaping means for shaping, for each of the rows longer in distance from said row selecting section than a predetermined distance out of the M rows of said photodetecting section, a waveform of the row selecting signal $SA_{A,m}$ outputted from said row

selecting section and which inputs a shaped row selecting signal $S_{A,m}$ into said cell switches of said pixels that constitute the m th row of said photodetecting section.

In the same field of endeavor, Trevino teaches a method of controlling readout of a CMOS imaging array (Figure 3), wherein a row decoder (Figure 3, address generator "30" and address decoder "32") outputs a signal to a waveform shaping circuit (Figure 3, and gate "38"). An auxiliary signal is output to the other input of the waveform shaping circuit (Figure 3, "rowgen"), which outputs a wave-formed shaped signal to activate the pixels in a specified row (Figure 3, row0 - rowN). In light of the teaching of Trevino, it would have been obvious to include the waveform shaping circuit along with the auxiliary signal in the apparatus of Stark, because an artisan of ordinary skill in the art would recognize that this would provide uniform control for a wide range of exposure times on a per row basis given a fixed frame capture time; meaning that for a given frame rate, the exposure time for the CMOS sensor array can be any arbitrary period such that, if the situation requires, the frame rate can remain constant while only the exposure time of each frame is varied (see Trevino, Col. 4, Lines 3-12)

As to claim 2, Stark, as modified by Trevino, teaches a solid-state image pickup apparatus according to claim 1, wherein said waveform shaping means shapes, for each of all rows of said photodetecting section, a waveform of the row selecting signal $S_{A,m}$ outputted from said row selecting section (see Trevino, Figure 4), and inputs a shaped row selecting signal $S_{A,m}$ into said cell switches of said pixels that constitute the m th row of said photodetecting section (see Stark, Figure 1).

As to claim 3, Stark, as modified by Trevino, teaches a solid-state image pickup apparatus according to claim 1, wherein said waveform shaping means is arranged, for each row

of said photodetecting section, at either one end side of the row (see Stark, Figure 6, left line decoder "104"; see Trevino, Figure 3).

As to claim 4, Stark, as modified by Trevino, teaches a solid-state image pickup apparatus according to claim 1, wherein said waveform shaping means is arranged, for each row of said photodetecting section, at both end sides of the row (Figure 6, left line decoder "104" and right line decoder "106"; see Trevino, Figure 3; *{The examiner submits that the addition of the AND gate of Trevino would result in the gates being provided for both the left and right line decoder; thus, locating the waveform shaping circuit on both sides of the row.}*).

As to claim 5, Stark, as modified by Trevino, teaches a solid-state image pickup apparatus according to claim 1, wherein said waveform shaping means includes a logic circuit that is inputted with the row selecting signal $S_{A,m}$ outputted from said row selecting section and that outputs a logic signal according to a level of the inputted row selecting signal $S_{A,m}$ as a waveform-shaped row selecting signal $S_{A,m}$ (see Trevino, Figure 3, AND gate "38"; Figure 4, row0 - rowN).

Conclusion

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. DANIELS whose telephone number is (571)272-7362. The examiner can normally be reached on 8:00 A.M. - 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AD
3/24/2009

/Sinh N Tran/
Supervisory Patent Examiner, Art Unit 2622